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SOCIETY FOR THE ENCOURAGEMENT OF ARTS,  
MANUFACTURES AND COMMERCE.

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SUBJECTS FOR PREMIUMS,

FOR THE SESSIONS 1863-64 AND 1864-65,

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Published by the Society of Arts.



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1863.

# THE COUNCIL AND OFFICERS

OF THE

Society for the Encouragement of Arts, Manufactures, and Commerce,

FOR THE 110TH SESSION, 1863-4.

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# THE SOCIETY OF ARTS

WAS founded in 1754, and incorporated by Royal Charter in 1847, for "The Encouragement of the Arts, Manufactures, and Commerce of the Country, by bestowing rewards for such productions, inventions, or improvements as tend to the employment of the poor, to the increase of trade, and to the riches and honour of the kingdom; and for meritorious works in the various departments of the Fine Arts; for Discoveries, Inventions, and Improvements in Agriculture, Chemistry, Mechanics, Manufactures, and other Useful Arts; for the application of such natural and artificial products, whether of Home, Colonial, or Foreign growth and manufacture, as may appear likely to afford fresh objects of industry, and to increase the trade of the realm by extending the sphere of British Commerce; and generally to assist in the advancement, development, and practical application of every department of science in connection with the Arts, Manufactures, and Commerce of this country."

The importations of new products from our Colonies, the reclaiming of waste lands, the improvement of Agriculture, the application of Chemistry to the Industrial Arts, and the improvement of Machinery, were amongst the earliest objects to which the Society directed its attention, and its transactions show that the Premiums it has awarded, the opportunities it has afforded for discussion, and the information it has been the means of disseminating, have led to many important improvements in Manufactures, and have laid open many new and valuable sources of industry and commerce in the United Kingdom, the Colonies, and foreign Countries.

The Society now issues the following General List of Subjects, in reference to which Premiums and Medals are offered. It is also directing its attention to the encouragement of Artist Workmen, by offering premiums for works in wood-carving, modelling, *repoussé* and hammered work in metal, chasing, ivory-carving, painting on enamel and porcelain, marquetry, glass-engraving, &c. Particulars of these Premiums will shortly be issued.

From a very early period the Society has held Exhibitions of various kinds, which, by showing what had already been done, and the degree of perfection that had been attained, have stimulated the progress of invention and design, and directed attention to points still requiring improvement. Since its Incorporation by Royal Charter, in 1847, it has been able to carry out these objects more systematically, and by holding a series of Industrial, Mechanical, Educational, and Fine Art Exhibitions, it prepared the way for the Great International Exhibition of 1851, which was originated by the Society.

It was subsequently occupied in establishing the International Exhibition of 1862, for which it obtained a Guarantee Fund of nearly £450,000, and a Royal Charter incorporating the Commissioners for carrying out the Exhibition.

For eighteen years the Society had the honour of having for its President the lamented Prince Consort, under whose auspices many of its most successful operations, including the Great Exhibition of 1851, were carried out. His Royal Highness the Prince of Wales has recently honoured the Society by accepting the office of President.

In 1852 the Society founded its "Union of Institutions," and now has about three hundred Literary, Scientific, and Mechanics' Institutions, and Local Educational Boards, in the United Kingdom and the Colonies, in Union with it. One of the principal objects of this "Union" being the promotion of adult education, the Society has appointed a Central Board of Examiners, and for several years past has held Examinations of members of these Institutions and other persons, to whom it awards Prizes and Certificates, in all the principal branches of knowledge. His Royal Highness the Prince Consort, late President of the Society, showed his interest in the Examinations by offering an annual prize of Twenty-five Guineas as a special mark of distinction, and this Prize has been graciously continued by Her Majesty the Queen.

The Society publishes a Weekly Journal, entitled the "Journal of the Society of Arts," which contains Reports of the Society's Proceedings and Transactions, Reports of the Institutions in Union, and a variety of information connected with Arts, Manufactures, and Commerce; the Society also enters into Correspondence and exchanges Publications with Foreign and Colonial Societies.

The Society consists of upwards of three thousand members.

Candidates for Membership\* must be proposed by three Members of the Society, and afterwards balloted for. The Annual Subscription is Two Guineas, payable in advance, from the quarter-day next preceding the date of election, or a life subscription of Twenty Guineas may be paid. There is no entrance fee.

The privileges of Members are as follows:—

- To be present and vote at all General Meetings of the Society.
- To attend the Wednesday Evening Meetings of the Society, when papers are read and discussed, and to give orders admitting two visitors to each Meeting.
- To attend the Courses of Lectures delivered during the Session, and to give orders admitting two visitors to each Lecture.
- To have personal free admission to all Exhibitions held by the Society.
- To be present at all the Society's *Conversazioni*.
- To receive a copy of the Weekly Journal.
- To use the Library and Reading Room.

The Session commences in November and ends in June. At the Wednesday Evening Meetings during the Session, papers on subjects relating to inventions, improvements, discoveries, and other matters connected with the Arts, Manufactures, and Commerce of the Country, are read and discussed.

Courses of Lectures, as follows, will be delivered during the Session 1863-4:—

Fine Art applied to Industry, by . . .	W. Burgess, Esq.
Chemistry applied to the Arts, by . . .	Dr. F. Crace Calvert, F.R.S.
International Commerce, by . . .	G. W. Hastings, Esq., Barrister-at-Law.

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\* Gentlemen desirous of becoming Members should communicate with the Secretary at the Society's House, Adelphi, London, W.C. who will also furnish information to Institutions relative to the terms and conditions of Union.

## SUBJECTS FOR PREMIUMS

DURING THE SESSIONS 1863-64 AND 1864-65.

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The COUNCIL, in issuing the subjoined List of desiderata, would urge upon the Members of the Society generally, and others, the importance of communicating detailed accounts of new processes in Arts or methods of Manufacture, of any modifications by which these may be simplified, or labour saved, and of any novel application of Raw Materials, whether previously known or not, to useful purposes. It is quite possible that some of the things here set down as to be done, may have been already accomplished, but in such cases the knowledge of them is limited. One of the objects of this Society is to elicit discussion on the subjects with which it deals, to see that nothing is concealed which may in any way tend to promote the good of all, and to record facts and opinions. The weekly meetings, and the *Journal of the Society of Arts*, afford the requisite facilities for effecting this, and the Council earnestly hope that the opportunities thus given may be taken advantage of.

Patented Inventions are not excluded from receiving the Society's awards.

The Society is willing to receive communications on subjects not included in the following list, but in all cases expressly reserves the power of rewarding any communication according to its merit, or of withholding the Premium altogether.

The degree of originality and extent of suggestions for improvements will have material influence on the adjudication of the award.

In all cases a full account and description of the invention for which a premium or medal is sought must be sent to the Society.

All communications must be written on foolscap paper, on one side only, with an inch and a quarter margin. They must be accompanied by such drawings, models, or specimens, as may be necessary to illustrate the subject. The drawings should be on a sufficiently large scale to be seen from a distance when suspended on the walls of a meeting-room.

In regard to Colonial Produce of all kinds, it is absolutely necessary that a certificate from the Governor, or other qualified person, should accompany the samples sent to the Society, certifying that they really are the produce of the particular district referred to. The samples should be sufficient in quantity to enable experiments to be made, and an opinion to be formed of their quality; and it is desirable that the cost price in the district from which they are forwarded should be given. In every instance the probable extent of supply, with the average yield, if cultivated, and whether similar articles have hitherto been exported from the Colony, or not, and in what quantities, should be stated.

All communications and articles intended for competition must be delivered, addressed to the Secretary, at the Society's House, free of expense, either on or before the 31st of March, 1864, or on or before the 31st of March, 1865, except where otherwise stated. In the first case they will be considered during the Session 1863-64, in the second case during the Session 1864-65. This restriction, as to the date of receipt, does not apply to articles of Colonial produce, in respect of which this list is valid until 31st December, 1865.

Any communication rewarded by the Society, or any paper read at an ordinary meeting, will be

considered as the property of the Society. Should the Council delay its publication beyond twelve months after the date of its being rewarded or read, the author will be permitted to take a copy of the same, and to publish it in any way he thinks fit.

Unrewarded communications and articles must be applied for at the close of each Session, between the third Wednesday in June and the last Wednesday in July, after which the Society will be no longer responsible for their return.

October, 1863.

By order,

P. LE NEVE FOSTER, *Secretary*.

## PREMIUM LIST.

### SPECIAL PRIZES.

#### SWINEY PRIZE.

**BEST WORK ON JURISPRUDENCE.**—Under the will of Dr. Swiney, a Silver Goblet, of the value of £100 sterling, containing gold coin to the same amount, is presented on every fifth anniversary of Dr. Swiney's death to "the author of the best published treatise on Jurisprudence."

The next award of this prize will be made on the 20th of January, 1864. Competitors for this prize should send in copies of their published works to the Secretary.

#### FOTHERGILL PRIZE.

Under the will of Dr. Fothergill, funds are bequeathed for the offer of a medal, and "the following subjects are proposed to the Society for their consideration:—

1. The best method of preventing destructive fires, and of detecting incendiaries.

2. Of speedily extinguishing fires when water is scarce.

3. Of speedily securing valuable property from the flames, and also from thieves.

4. Of preventing or diminishing the numerous fatal disasters from fashionable muslin dresses catching fire, whether by rendering such dresses less combustible, or having constantly in readiness a large cloak of incombustible fabric composed of asbestos or amianthus, with which instantly to enwrap the whole body.

Paper of this kind (incombustible) might preserve from fire valuable deeds and other manuscripts. A premium for the encouragement of such a manufacture is also earnestly recommended.

The above to be varied at the Society's discretion."

On the present occasion the Society's medals are offered:—

**STEAM FIRE ENGINES.**—1. For the best and most efficient steam fire-engine for land use.

2. For the best and most efficient steam fire-engine capable of self-propulsion on land.

The conditions required are:—Rapidly in raising and generating steam; facility of drawing water; volume of water thrown; distance to which it can be thrown; lightness, strength, and durability.

#### STOCK PRIZE.

Under the will of John Stock, funds are bequeathed for the offer of a medal for the encouragement of Drawing, Sculpture, and Architecture.

**SHELL COMEO.**—On the present occasion the Society's medal is offered to female artists, for the best cameo designed and executed on any of the shells ordinarily used for that purpose.

#### TREVELYAN PRIZE.

**PRESERVED FRESH MEAT.**—The sum of £70, placed at the disposal of the Council by Sir W. C. Trevelyan, Bart., with the Society's medal, is offered for the discovery of a process for preserving fresh meat better than by any method hitherto employed, applicable to the preservation of meat in countries where it is now almost valueless, so as to render it an article of commerce and available for stores on ship-board.

Specimens, with detailed accounts of the process employed, must be sent to the Society.

#### DENTON PRIZES.

**COTTAGES FOR THE LABOURING CLASSES.**—Two prizes, of £25 each, are placed in the hands of the Council by J. Bailey Denton, Esq., to which are added the Society's medals, to be offered for the most approved designs for cottages, to be built singly or in pairs, at a cost not exceeding £100 each. One prize is to be competed for by members of the Architectural Association, and the other is open to general competition.

Detailed particulars have been issued and may be had on application to the Secretary.

The plans, drawings, and specifications, must be sent to the Society's House, not later than the 1st January, 1864.

#### ART WORKMANSHIP AND WOOD-CARVING EXHIBITION AND PRIZES.

Prizes are offered by the Society in these subjects, and an Exhibition will take place in 1864.

Special lists relative to this competition will be issued.

#### GENERAL LIST.

\*.\* The Society's medals will be awarded for communications or discoveries in relation to the following subjects:—

1. **GOLDSMITHS' WORK.**—For the best essay on Ancient Goldsmiths' Work.

2. **BRONZES.**—For the best essay on the manufacture and casting of Bronzes, and on bronze washes.

3. **MOULDS FOR METAL CASTING.**—For the production of a material to be used in the formation of moulds for casting bronzes and other molten metals, so as to enable the casts to be produced without seams.

4. **PIGMENTS.**—For an account of the various pigments used in the Fine Arts, with suggestions for the introduction of new and improved substances.

5. **SUBSTITUTE FOR WOOD BLOCKS.**—For the discovery of a substitute for the blocks used by wood-engravers, so as to supersede the necessity of uniting several pieces of wood.
6. **PHOTOGRAPHS ON ENAMEL.**—For the best portrait obtained photographically and burnt in enamel.
7. **PHOTOGRAPHS ON CHINA.**—For the production of a dessert or other service, in China or earthenware, ornamented by means of photography and burnt in from an impression obtained, either directly from the negative, or from a transfer from a metal plate obtained directly from the photograph.
8. **PHOTOGRAPHS ON GLASS.**—For a table service in glass ornamented by means of photography, under similar conditions to the above.
9. **PHOTOGRAPHS ON WINDOWS.**—For the production commercially of ornamental glass for windows by means of vitrified photographs.
10. **FLUORIC ACID.**—For a substitute for fluoric acid to be used for engraving on glass, which shall be free from noxious fumes.
11. **REPRODUCING DESIGNS FOR PRINTING.**—For a rapid means of reproducing artistic designs or sketches, for surface printing by machinery, such process to provide for lowering portions of the work to fit it for steam printing.
12. **ROLLERS FOR CALICO PRINTING.**—For any important improvements in facilitating the production and economising the cost of engraving rollers for printing calicoes and other fabrics.
13. **DOCTORS FOR CALICO PRINTING.**—For the best material for, and form of "doctors" for calico printing machines, which shall obviate the several objections to those now in use.
14. **ANILINE COLOURS.**—For a means of fixing upon cotton and other fabrics all the ordinary aniline colours, so that the dyed fabric will effectually resist the action of soap and water, or cold dilute alkalis.
15. **NAPHTHALINE.**—For a practical process for converting the naphthaline of gas works into alizarine or madder-red.
16. **TURKEY RED.**—For an essay, with the results of experiments, on the manufacture of Adrianople red.
17. **NEW SCARLET DYE.**—For the production of a scarlet dye for cotton.
18. **MUREXIDE RED.**—For rendering murexide red more permanent, when exposed to the atmosphere and sulphurous vapours.
19. **BLEACHING WOOL.**—For an account of any important improvements in the bleaching of wool.
20. **LAKES FOR CARRIAGES.**—For the production of cheap purple and yellow lakes, of good quality, suitable for carriage builders, &c., and not liable to fade or change colour.
21. **MORDANTS.**—For a treatise on the mordants employed in the dyeing of cotton, wool, and silk.
22. **NEW GREEN DYE.**—For an account of the "green dye from Malda," as shown in the Indian department at the International Exhibition of 1862, including original researches, giving methods of fixing the same upon cotton and other fibres and yarns.
23. **GREEN WITHOUT ARSENIC.**—For the manufacture of a brilliant green colour, not containing arsenic, copper, or other poisonous materials.
24. **CHLOROPHYLL.**—For the manufacture of chlorophyll from grasses, suitable for dyeing silk and other fabrics of a green colour.
25. **GREEN DYES.**—For the manufacture of green dyes from coal or wood tar.
26. **ULTRAMARINE.**—For an artificial ultramarine, not liable to alteration when thickened with albumen and fixed by steam.
27. **COLOURS FOR DYEING, &c.**—For the discovery of oxy-naphthalic acid, a preparation of chloroxy-naphthalic acid, or for a treatise on the application of Laurent's colours to dyeing and calico printing.
28. **TRADE IN FOREIGN DYE STUFFS.**—For an essay on the influence of the Aniline series of colours upon the trade and commerce in foreign dye stuffs.
29. **THICKENING COLOURS.**—For the introduction of any substance the use of which will essentially economise the cost of thickening the colours and sizes used in dyeing and dressing fabrics.
30. **SUBSTITUTE FOR EGG ALBUMEN.**—For a thoroughly decolorised blood albumen, or any economic and efficient substitute for egg albumen for calico printing.
31. **USE FOR YOLK OF EGGS.**—For a new, large, and economic use for the yolks of eggs, with particulars of the mode of preparation and preservation.
32. **USES OF SEAWEED.**—For the extraction from seaweed of any substance, or preparation, capable of extensive application as a dye, drug, thickening agent, or other generally useful product.
33. **CLAYS.**—For an account of the mode of occurrence, and of the uses of Cornish, Devonshire, and Dorsetshire clays, and the quantities annually worked.
34. **ARTIFICIAL STONE AND TERRA COTTA.**—For an account of the various artificial stones and Terra Cottas introduced and employed for purposes of construction, stating their properties, advantages and imperfections, and their relative cost.
35. **LIGHTING AND VENTILATING MINES.**—For an account of the methods at present in use in the various coal-mining districts for ventilating and lighting the mines, with suggestions for their improvement.
36. **COPPER SMELTING, &c.**—For an account of the various commercial copper ores, of the smelting processes, and the methods by which the precious metals can be separated from copper.
37. **TIN.**—For an account of the treatment of Tin, and its application in the Arts and Manufactures, and of recent discoveries of new sources of supply.
38. **WOLFRAM.**—For an account of the modes by which Wolfram can be separated from other ores; and of the uses of Tungsten in the Arts.
39. **MENACCANITE.**—For an account of Menaccanite or Iserine, and suggestions for obtaining Titanium from these ores.
40. **TITANIUM.**—For the best essay upon Titanium, with suggestions for extracting and utilising the metal.
41. **SMELTING ZINC.**—For an account of the processes now in use for smelting Zinc ores, with suggestions for their improvement.
42. **SULPHUR AND ARSENIC.**—For the best account of the production of Sulphur and Arsenic from the metalliferous ores of the United Kingdom, with statistics of the use and export of these substances.
43. **MINING MACHINERY.**—For improvements in the machinery for dressing poor ores of tin, lead, &c.
44. **ROPES FOR MINES.**—For an account of the comparative value of chains, hemp and wire ropes, for drawing ores from mines, giving the practical result of experiments.
45. **PUMPING ENGINES.**—For an account of the relative merits of the different kinds of engines used for drawing water from mines.
46. **PLUMBAGO.**—For the discovery of graphite in Australia, of a quality and in quantity calculated to be commercially useful.
47. **ALUMINIUM.**—For any new or improved process for the manufacture of Aluminium which by cheapening its cost may render it applicable to many purposes for which it cannot now be employed.
48. **SILICIUM.**—For the best essay upon Silicium, and its uses.
49. **MELTING CAST STEEL.**—For an easy and cheap method of melting cast steel in large masses.
50. **AGRICULTURAL STEAM-ENGINE.**—For the production of an efficient agricultural steam engine, capable of use on the farm, and of being made available as a traction-engine, either on tramways or common

- roads, for carrying farm produce and manure to  
 alyway stations.
51. **REGENERATIVE FURNACES.**—For the best account of the structure and application of regenerative furnaces to manufacturing purposes.
  52. **BREWERY PLANT.**—For a descriptive account of improved designs for the construction and plant of breweries especially in the arrangements for boiling, cooling, hoisting, pumping, washing, attempting, cask-washing, &c.
  53. **HYDRAULIC ENGINE.**—For a small, simple, cheap, and effective hydraulic engine, which in connection with the ordinary water-service of towns could be applied to lifts in warehouses, driving lathes, blowing the bellows of organs, and many other purposes where steam cannot be made available.
  54. **LIGHTING RAILWAY CARRIAGES.**—For a system of lighting railway carriages with gas, each carriage to have an independent supply equal to the duration of the oil-lamps now carried, and the system to be adaptable to existing carriages.
  55. **LOCOMOTIVES FOR TUNNELS.**—For the best locomotive engine for working in tunnels and underground railways, so as to avoid the injurious effects of ordinary engines.
  56. **RAILWAYS.**—For a complete and economic system of constructing railways in iron, with the necessary plant for working railways in tropical countries and the Colonies.
  57. **PROTECTING IRON.**—For the invention of an efficient method of protecting iron from the action of air and water, applicable to the various forms in which iron is used as a building material generally, and also to iron ships and armour-plated vessels.
  58. **UNsinkable SHIPS.**—For plans or suggestions for the construction of an efficient and seaworthy vessel, of such materials and specific gravity, that when perforated either by shot or accident, she shall still maintain her floating power.
  59. **IRON SHIPS.**—For the best and most convenient method of welding together the frame-work and covering of iron vessels, so as to dispense with bolting and riveting.
  60. **DIVING APPARATUS.**—For an improved diving apparatus in which divers may work free from the influence of great pressure, and at greater depths than by means of the diving bell, helmet, or other existing appliances.
  61. **SHOAL RECORDER.**—For an instrument to indicate the depth of water under a ship's bottom to prevent danger when at sea or nearing land.
  62. **SmoKELESS FUEL.**—For the discovery or manufacture of a new smokeless fuel, which shall not occupy more space, or be of greater weight than the fuel now in use; and shall be equal in amount of heating power, without liability to injure metals in contact with it.
  63. **MOTIVE POWER.**—For the generation of power in sea-going vessels by any process whereby the necessity for carrying a large supply of coal may be avoided.
  64. **STEAM COAL IN AUSTRALIA.**—For the discovery, in any of the Australian Colonies, and the introduction into local commerce of a good steam coal. Particulars of probable quantity available, distance of mine from shipping port, and comparative heating power and cost to be furnished.
  65. **ELECTRICITY.**—For any new process for producing or obtaining galvanic electricity, so that it may be obtained in large quantities at small cost.
  66. **APPLICATION OF ELECTRICITY TO ORGANS.**—For the production of an organ in which, by the use of electricity or magnetism, tones of greater length and variety than those ordinarily produced on barrel-organs may be performed mechanically.
  67. **ELECTRIC WEAVING.**—To the manufacturer who practically applies electricity to the production commercially of figured fabrics in the loom.
  68. **SILK BOBBIN.**—For a bobbin for silk, which shall possess exact uniformity of weight, be incapable of being made heavier without detection, and which will not absorb moisture. The material employed must not be liable to chip, or to affect the colour of the silk wound on it.
  69. **LACE MACHINERY.**—For a mechanical substitute for hand-labour in running in the outline to figures in machine-wrought lace.
  70. **WOVEN GARMENTS.**—For the production in the loom, and introduction into commerce, of woven garments suited for soldiers, sailors, emigrants, operatives, and others, so as to economise the cost of production, and reduce the amount of hand labour.
  71. **INCOMBUSTIBLE PAPER.**—For the production of an incombustible paper, so as to render the ledgers of commercial men, bankers, &c., indestructible by fire.
  72. **DRESSING AND DYEING SKINS.**—For an account of the materials and methods at present employed in preparing and dressing skins, and the colours and treatments to which they are submitted in dyeing.
  73. **DYEING AND DRESSING LEATHER.**—For improvements in the method of dyeing or dressing morocco or calf leather, in such manner as to prevent the surface from cracking in working, and to render it more fit to receive the gilding required in ornamenting books, furniture, and other articles.
  74. **LEATHER CLOTH.**—For improvements in the manufacture of leather-cloth or artificial leather, especially in imparting strength and durability, so as to fit it for the purposes of saddlers, harness-makers, trunk-makers, shoemakers, book-binders, and others.
  75. **SUBSTITUTE FOR WOOL.**—For any fibrous material available in large quantity and at a low price, capable of being used advantageously in textile fabrics, as a substitute for wool. The fibre should be from 1 to 6 or 8 inches in length, and suitable for being spun on the ordinary woollen or worsted machinery.
  76. **SUBSTITUTE FOR COTTON OR FLAX.**—For any new fibrous plant or substance which may be used wholly or in part as a substitute for cotton, flax, hemp, &c., or any new processes whereby useful fibres may be extracted from plants.
  77. **NEW GUMS.**—For any new substance or compound which may be employed as a substitute for Indian-rubber or gutta-percha in the arts and manufactures.
  78. **NEW GUMS OR OILS.**—For any new gum or oils the produce of Africa, calculated to be useful in the arts and manufactures, and obtainable in quantity. Samples of not less than 25lbs. of gum, and 50lbs. of oil to be transmitted to the Society.
  79. **ELASTIC TUBING.**—For an elastic material for tubing suited to the conveyance of gas, and not liable to be affected by alterations in temperature, or to be acted upon by the gas itself.
  80. **GLASS.**—For the production of glass by the use of the constituents of which the French sands are composed, such glass to be of a quality equal to that produced from those sands.
  81. **COLOUR FOR JAPANNED SURFACES.**—For the preparation of any colour, applicable to the japanned surfaces of papier maché, that shall be free from the brightness (or glare) of the varnished colours now used, but possess the same degree of hardness and durability.
  82. **COLOUR FOR SLATE.**—For the preparation of light colours to be used in enamelling or japanning slate, which will stand the action of the heat from the fire without blistering or discoloration, and be sufficiently hard to resist scratches.
  83. **JAPANNING ZINC.**—For a process whereby the surface



- of articles manufactured in zinc may be economically jappanned.
84. COATING WALLS.—For the production of a cheap white enamel-like composition for the interior walls, &c., of houses, applicable to all ordinary surfaces, easily cleansed, not liable to crumble or chip, and capable of being tinted.
  85. SUBSTITUTE FOR TURPENTINE.—For a new and efficient substitute for turpentine applicable to the manufacture of varnishes, and to purposes for which turpentine is now ordinarily applied.
  86. SUBSTITUTE FOR PITCH.—For a cheap substitute for pitch, tar, &c., equally impervious to air and moisture, but non-inflammable.
  87. PAPER MACHINERY.—For a portable machine for planing the bars of a rag-engine roll true when the roll is in position.
  88. PAPER MACHINERY.—For a cheap substitute for the expensive copper rolls now used in paper machines; a firm surface, not easily damaged by indentation, and not liable to oxidation is essential.
  89. PAPER MATERIAL.—For the best essay upon paper-making materials, with suggestions for reducing economically the more refractory ligneous substances suited for papermaking to a fibrous pulp by mechanical or chemical means.
  90. ROLLERS FOR PRINTING PAPER-HANGINGS.—For a composition for feeding rollers for printing paper-hangings by cylinder machinery, similar in consistency and texture to the gelatine rollers used in letterpress printing, but adapted for working in water colours.
  91. PAPER HANGINGS COLOURED IN THE PULP.—For the manufacture of papers from coloured pulp, bearing upon them designs, either coloured or white, discharged after the manner of calico printing.
  92. LUBRICANTS.—For an account of the sources of supply, processes of manufacture, and relative value of the various lubricants employed on working machinery and rolling stock.
  93. RED OIL.—For the solidification of oil by nitrous compounds, without the formation of red oil, or for the removal of the red oily body without injury to, or softening the solidified fat.
  94. IMPROVED CHEMICAL BALANCE.—For the best chemical and assay balance, suitable for the use of students and experimentalists, which will (with 600 grains in each pan) show a difference of .005 or less. To be sold at a moderate price.
  95. CHEAP SPECTROSCOPE.—For the best and cheapest form of spectroscope.
  96. DIALYSING APPARATUS.—For the best and cheapest form of dialysing apparatus, capable of being packed in a small compass, but of sufficient size to aid the country practitioner in the detection of poisons and adulterations, and in the preparation and purification of salts and drugs.
  97. INCOMBUSTIBLE WICK.—For the production of an incombustible wick, suitable for oil, spirit, and other lamps.
  98. CYANOGEN COMPOUNDS.—For the economical production of cyanogen compounds for employment in the arts, or as manures.
  99. NAPHTHALINE.—For the discovery of a practical means of utilising naphthaline.
  100. OXYGEN GAS.—For a more economical process of obtaining oxygen gas than any in present use.
  101. NEW EDIBLE ROOTS.—For the discovery and introduction into this country of any new edible root useful as food for man or cattle, and capable of extensive and improved cultivation.
  102. EDIBLE SEAWEEDS.—For a means of rendering seaweeds generally available as a wholesome vegetable food on board ship.
  103. AUSTRALIAN SUGAR.—For the production and manufacture of not less than one ton of cane sugar, the produce of any of the Australian colonies. Details of the extent of land under cultivation, the yield of sugar per acre, and the cost of production per ton, to be furnished.
  104. AUSTRALIAN COFFEE.—For the successful introduction of coffee cultivation into any of the Australian colonies, and the production of 1 cwt. of merchantable coffee. Samples of 10 lbs. to be sent to the Society.
  105. SPICE CULTURE IN AUSTRALIA.—For the introduction of the nutmeg, clove, pepper, or any other useful commercial plant into the Australian colonies, and the production of not less than one cwt. of produce therefrom. Samples of at least 1 lb. of each to be sent to the Society.
  106. AILANTHUS SILKWORM.—For the introduction of the Ailanthus silkworm into Australia, and the production of not less than one bale of silk. Samples of 1 lb. at least to be sent to the Society.
  107. FLAX IN AUSTRALIA.—For the production in any of the Australian Colonies of Flax of a good marketable quality. A sample of not less than one bale to be forwarded to the Society.
  108. AFRICAN SPICE PLANTS.—For an account of the spice plants and condiments of Africa, wild or cultivated, with samples and cost.
  109. ESSENTIAL OILS FROM AUSTRALIA.—For the introduction into commercial use at a moderate price of the essential oils shown at the late International Exhibition from Australia, or of any other new essential oil likely to be useful in medicine or the arts.
  110. MINERAL OIL FROM AUSTRALIA.—For the manufacture in Australia of any very cheap oil from mineral or other sources, and its application to the purposes of illumination, lubricating machinery, use in the industrial arts, &c.
  111. IMPROVED SUGAR MACHINERY.—For a practical report on any recent improvements in sugar machinery introduced into and adopted in the British or French Colonies, or on the Continent.
  112. EMIGRANTS' DWELLINGS.—For the best essay (for the information of emigrants proceeding to new settlements,) descriptive of the means of treating existing natural products in any locality, such as earth, shells, chalks and limestones, woods, barks, grasses, &c., and applying them in the construction of dwellings. Diagrams and illustrations of the methods of applying materials should be given.
  113. COLOURED STARCHES.—For the production of a series of coloured starches, which can be applied to articles of dress, such as lace, &c., without injuring or staining the fabric, but at the same time give to them the required tints, and thus render them in harmony with other portions of dress.
  114. TOBACCO.—For an account of the cultivation, preparation, and manufacture of the various kinds of tobacco and the commerce therein.